

Im

Oberseminar Partielle Differentialgleichungen

gibt es am

**Donnerstag, dem 24. Mai 2018,**

einen Vortrag von Herrn

**Prof. Dr. Reinhard Racke**

(Universität Konstanz)

*“ Exponential stability for thermoelastic plates:  
comparison and singular limits ”*

Beginn: **15.15 Uhr**

Raum: **F 426**

Interessenten sind herzlich willkommen!

R. Racke, O. Schnürer

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**Abstract:** We consider different models of thermoelastic plates in a bounded reference configuration: with Fourier heat conduction or with the Cattaneo model, and with or without inertial term. Some models exhibit exponential stability, others are not exponential stable. In the cases of exponential stability, we give an explicit estimate for the rate of decay in terms of the essential parameters appearing (delay  $\tau \geq 0$ , inertial constant  $\mu \geq 0$ ). This is first done using multiplier methods directly in  $L^2$ -spaces, then, second, with eigenfunction expansions imitating Fourier transform techniques used for related Cauchy problems. The explicit estimates allow for a comparison. The singular limits  $\tau \rightarrow 0$ , and  $\mu \rightarrow 0$  are also investigated in order to understand the mutual relevance for the (non-) exponential stability of the models. Numerical simulations underline the results obtained analytically, and exhibit interesting coincidences of analytical and numerical estimates, respectively.

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